



M&S in FCS T&E



***SMART CONFERENCE
17 APRIL 2002
MR. SCOTT SOLON***



Quality Control for the US Army



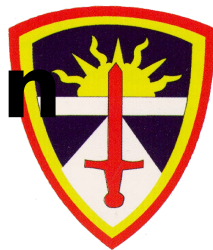
TOPICS

- USE of M&S in T&E
- M&S STRATEGY TO SUPPORT FCS
- PHASED APPROACH
- PARTNERSHIPS, OPPORTUNITIES, AND CHALLENGES

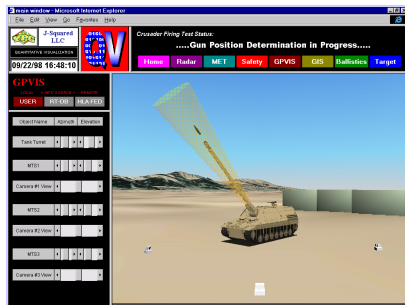




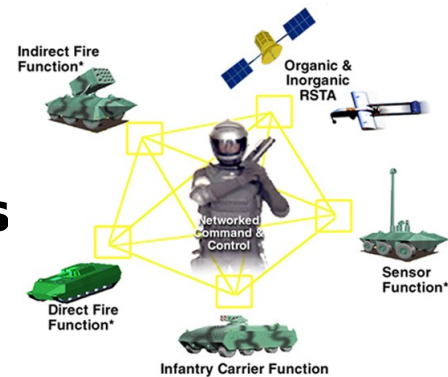
Use of Modeling and Simulation



Quantitative Visualization



- Model development and availability
- Significant cost savings
- Increased use of M&S in tests
- Hardware and Soldier in the loop
- Live Tests for model validation
- Model-Test-Model paradigm
- Reduced analysis



Eliminate Some Field Testing

Weather

Obscurants & Interferents

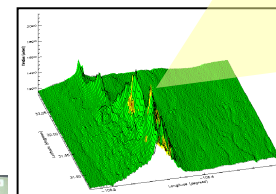
Chem/Bio Agent

**C4I/
Digitization**

Virtual Features

**Individual & Collective Protection
& Survivability**

Virtual Range

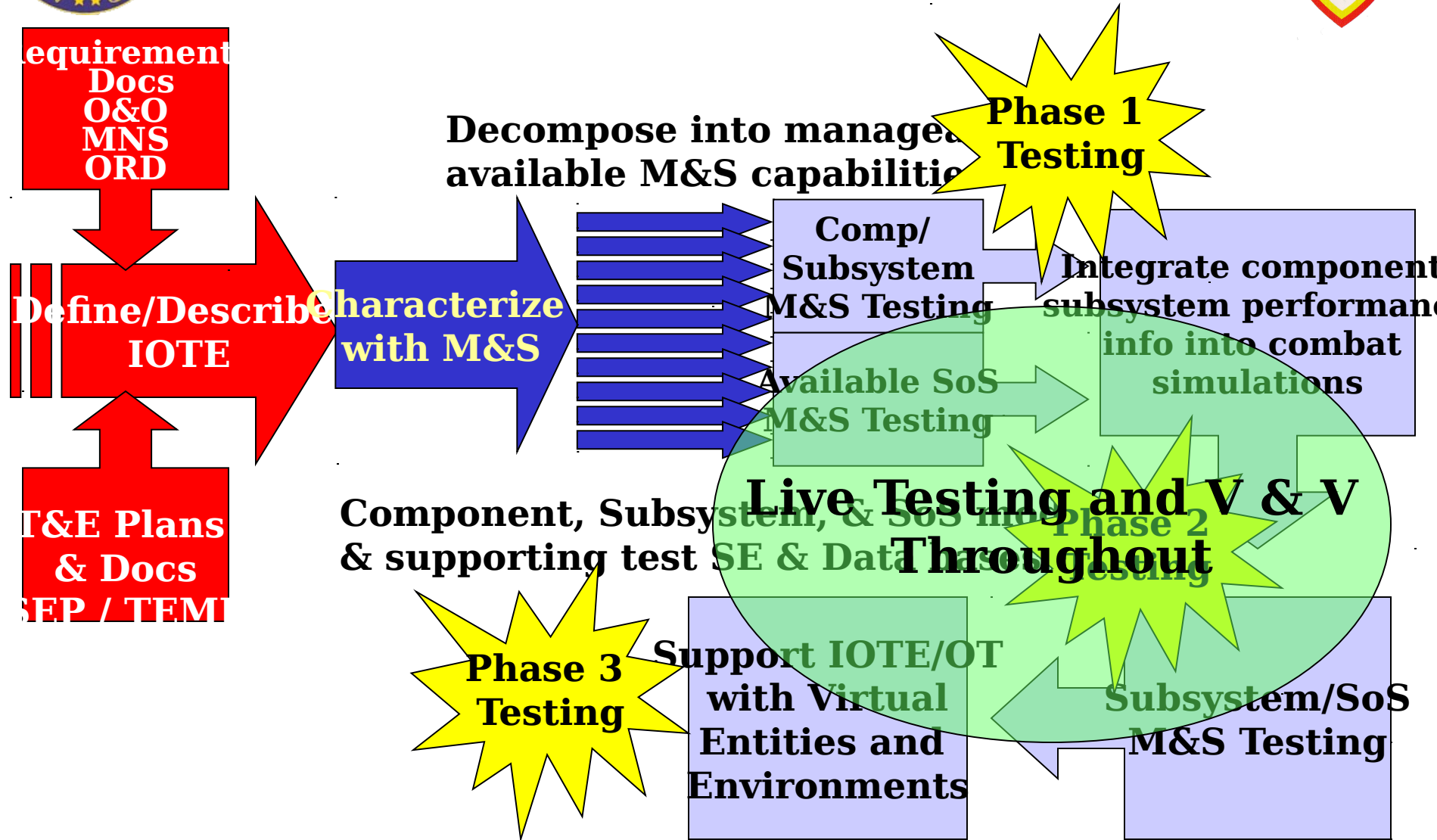


Link Dist = 33.5 Km
Freq = 70.22 Mhz
Path Loss = 90 dB
Availability = .95

Analysis Tool



Overview of M&S T&E Strategy





Phase I M&S Support: Concepts, Virtual Prototypes, Surrogate Component and Subsystem Testing



Vehicle
Mobility
Live Fire

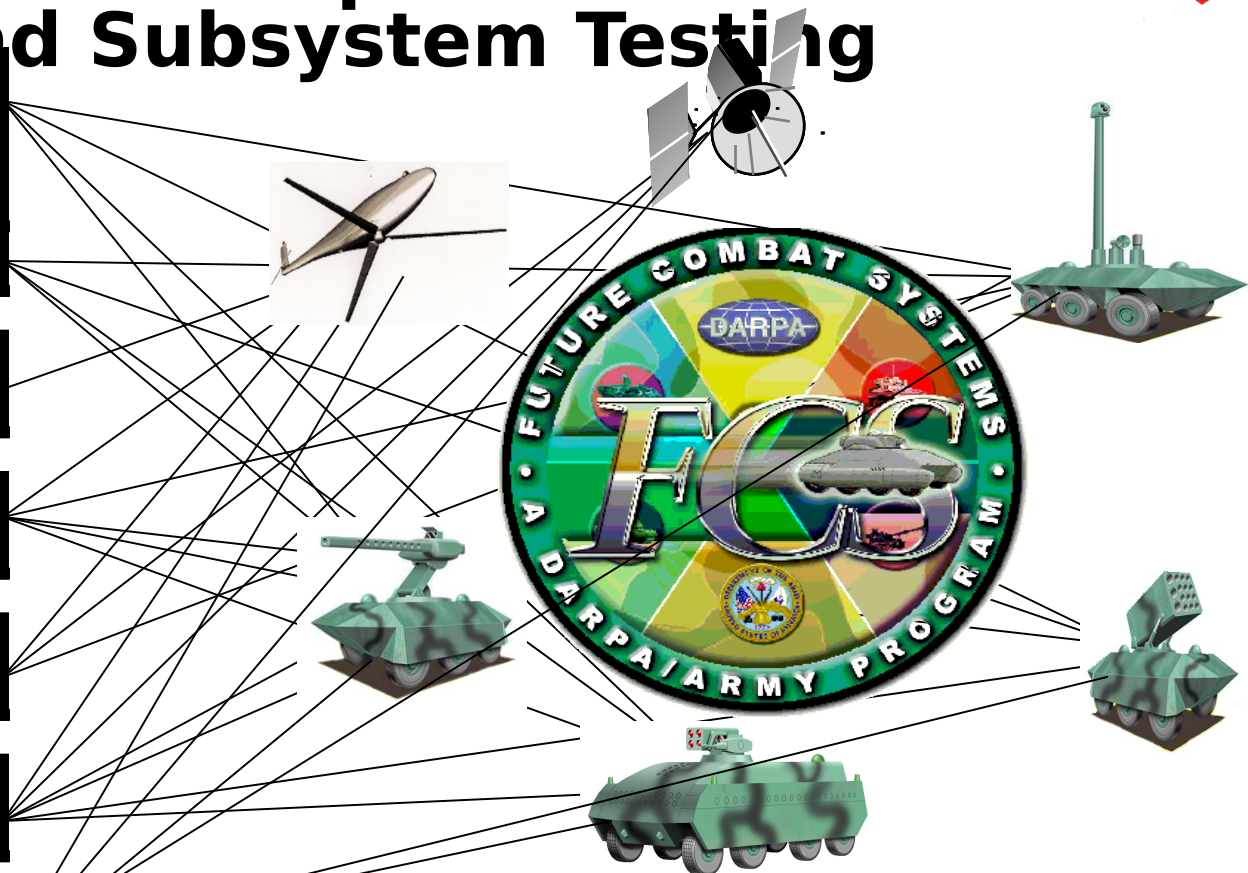
Aviation

CB

Sensors

C4ISR

Environment





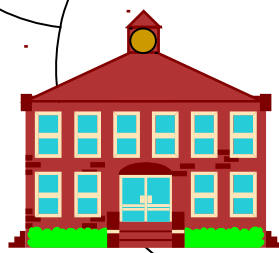
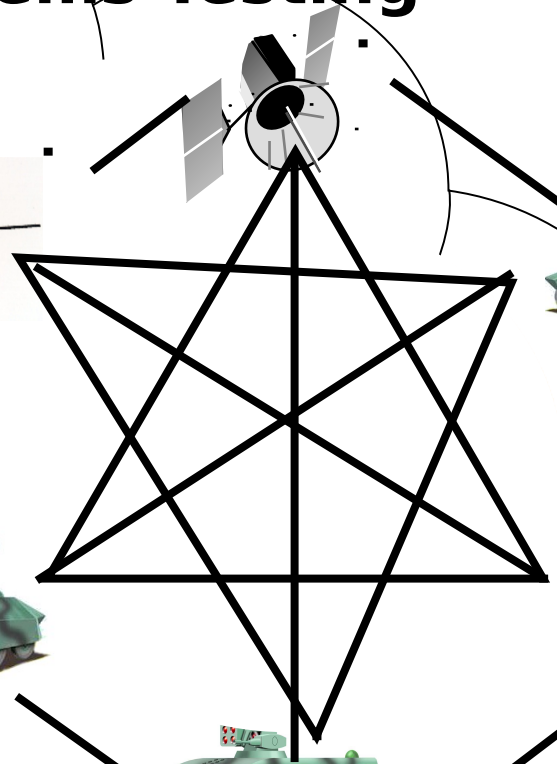
Phase II M&S Support: Enhanced Phase I & System of Systems Testing



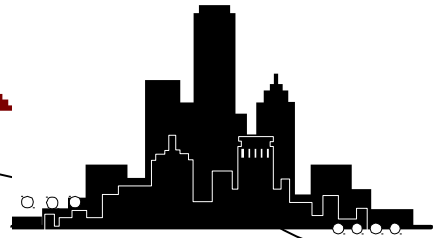
Test Centers

- ATEC M&S
- Mobility
- Live Fire
- Aviation
- CB
- Sensors
- C4ISR
- Environment

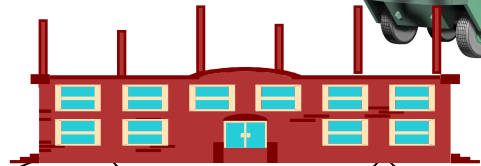
**Distributed M&S -
Defense Research and
Engineering Network
(DREN)**



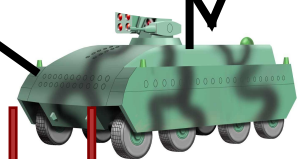
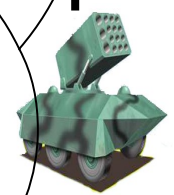
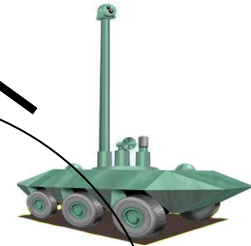
Academia



Industry



Labs & RDECs





Phase III M&S Support: Stimulate FCS and Soldier for OT

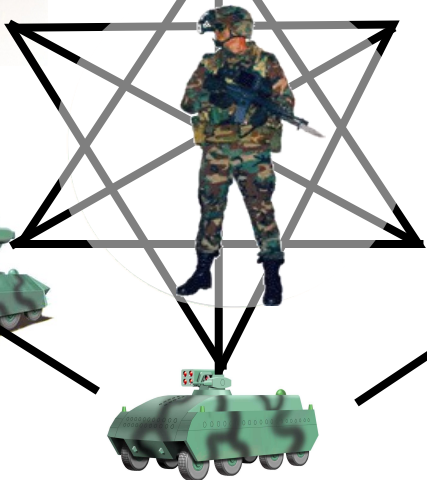


Test Centers

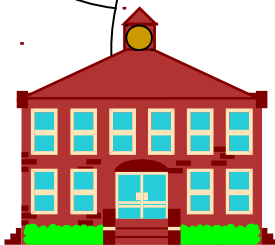


Operational Test Sites

**Distributed M&S
Stimulates FCS
Hardware & Soldier**



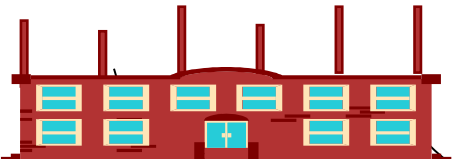
Combat Training Centers



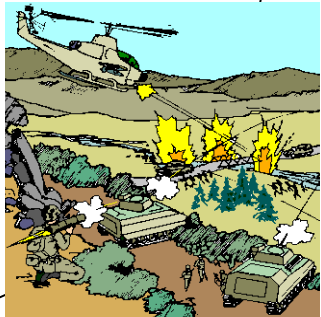
Academia



Industry



Labs & RDECs





ATEC System Team

Early Involvement and Partnership

**Milestone
Decision Authority**

OIPT

System IPT

T&E IPT



AST Chair

Evaluators

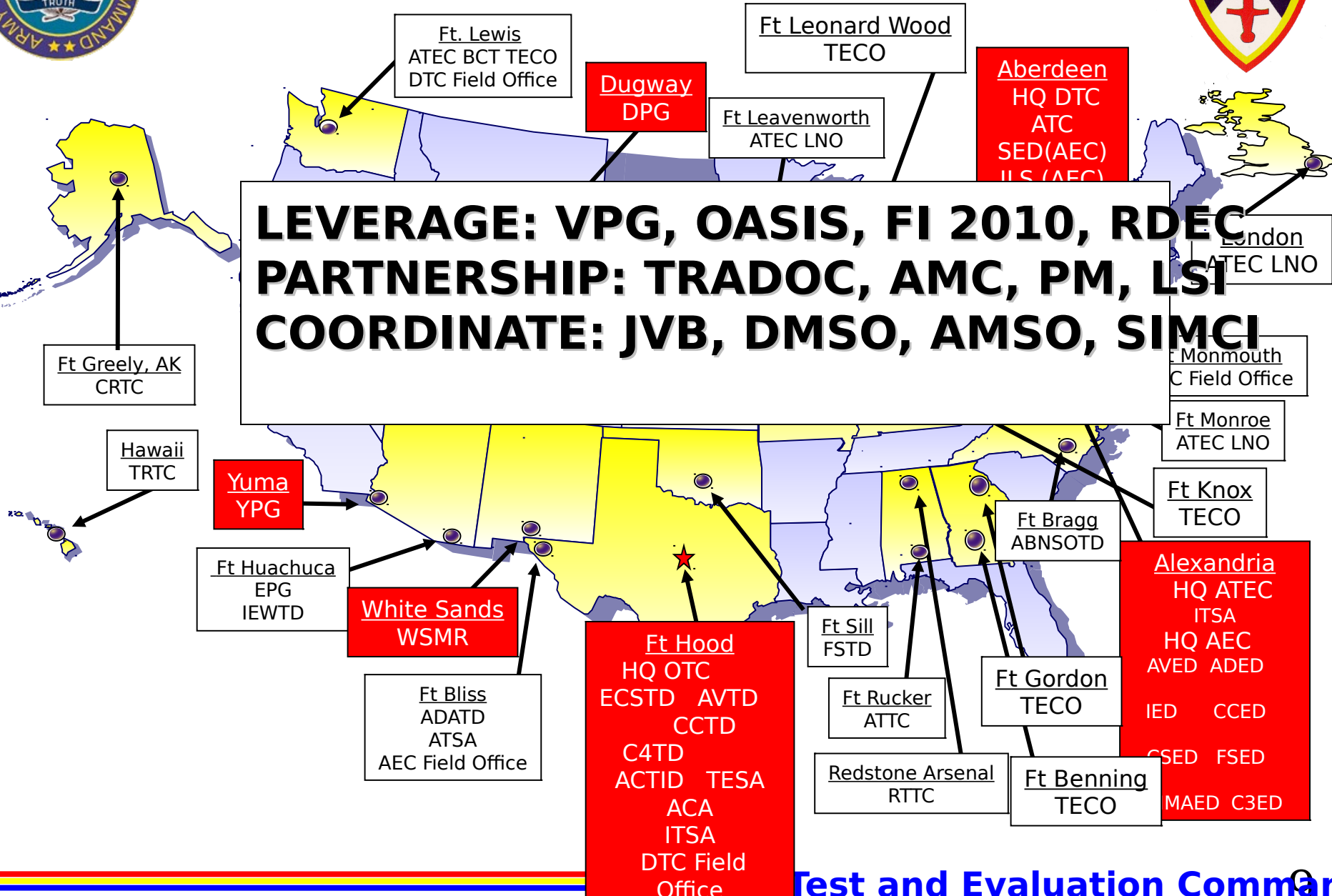
**Developmental
Testers**

**Operational
Testers**



ATEC LOCATIONS

LEVERAGE: VPG, OASIS, FI 2010, RDEC
PARTNERSHIP: TRADOC, AMC, PM, LSI
COORDINATE: JVB, DMSO, AMSO, SIMCI





Integrated Test and Evaluation

System Test & Evaluation

Effectiveness

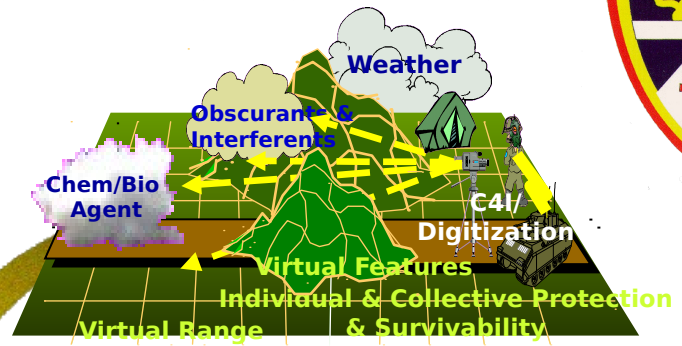
Suitability

Survivability

System Evaluation Plan



Live Fire



Modeling and Simulation



DT / OT



Developmental Tests

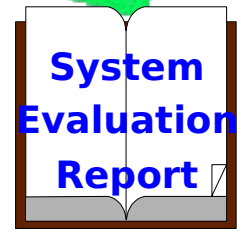


Operational Test

T&E
CONTINUUM

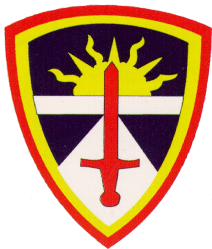
INTEGRATED STRATEGY

Single Evaluation Report provided before each milestone

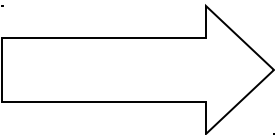




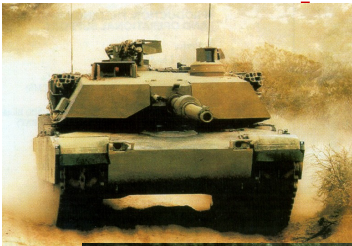
Systems of Systems Testing



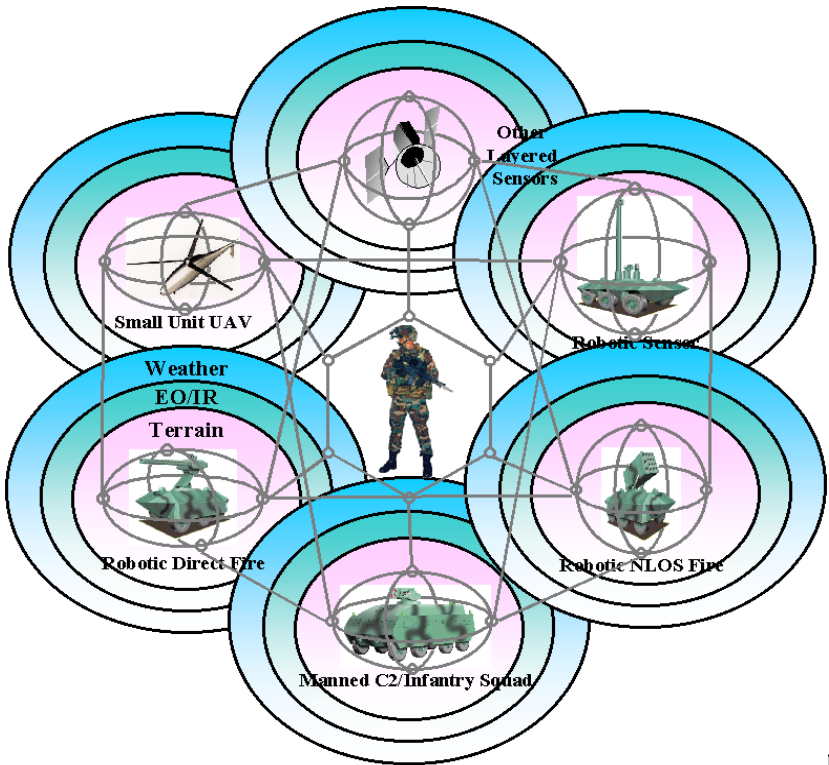
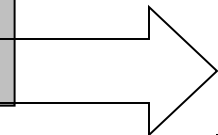
From This...
Platform
Centric



To This...
Network
Centric Testing



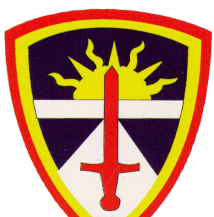
Individual weapon systems tested sequentially across all ranges



Be able to support network centric testing through distributed T&E, M&S tools and investments, and geographically separated ranges



Life Cycle M & S Support Virtual Proving Ground



Concept

Test the
Models

Design

Test the
Virtual
Prototype

Development

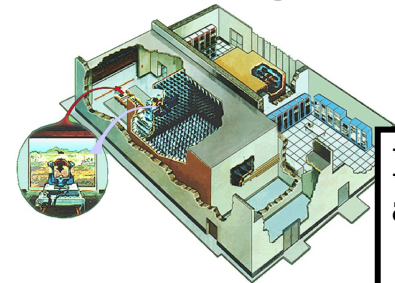
Test the
Hardware
Prototype

Production

Test the
Hardware

Fielding

STAF Facility at RTTC



**Hardware
in the**

Roadway Simulator
at ATC



GSTB
Virtual
Instrumentation



Constructive

FTSS Program at
ATTC

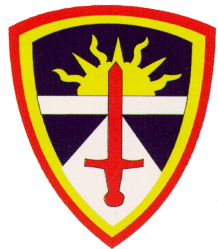


↑
VW&A

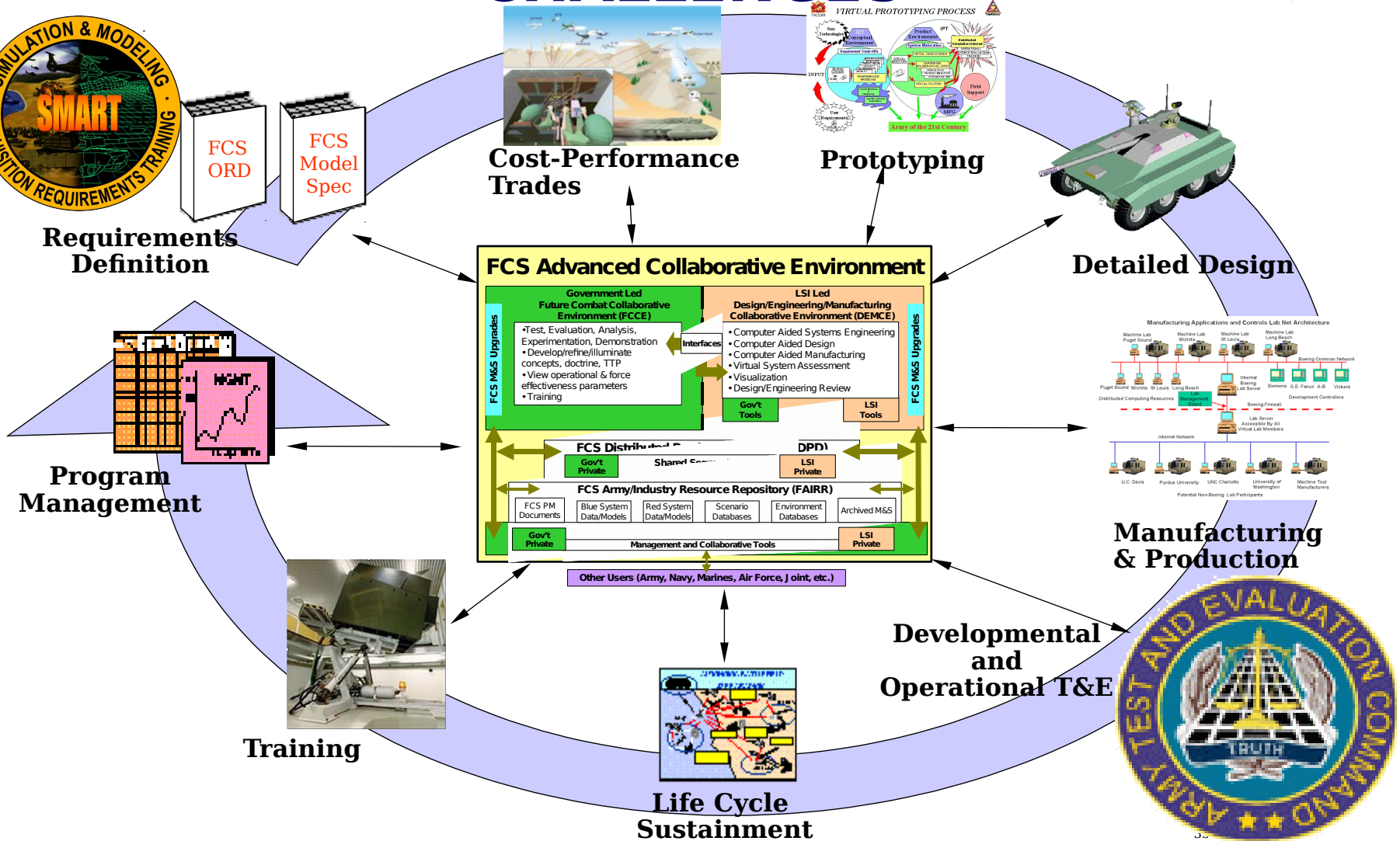
VISION:
Building the Ground Truth

←
VV&A

M & S improves T & E;
expands knowledge

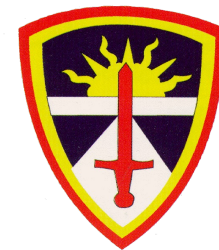


PARTNERSHIPS OPPORTUNITIES AND CHALLENGES





Core Value



ATEC's
ultimate customer is
the soldier --
our sons and
daughters --
who will judge
our efforts with
their lives and
their mission
accomplishment
not.be
compromised.



Back Ups

ATEC

Evaluation Strategy

